



One Billion Trees social licence and social barriers

Summary report

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1 Introduction

In the lead up to the One Billion Trees Programme (1BT), the Ministry for Primary Industries (MPI) identified a priority gap around public perceptions and social acceptance of planted forests, in particular, planted indigenous forests – ‘*Limited information on public perceptions of alternatives to pines and the management, potential harvest and uses of planted indigenous forests*’, and ‘*Researching barriers to planting trees, particularly in relation to negative perceptions of forestry and harvest of native forests.*’ (Te Uru Rākau n.d.).

To fill this gap, a collaborative effort between Manaaki Whenua – Landcare Research, Scion, AgResearch, and Wikaira Consulting took shape based on our understanding of the issues surrounding the 1BT programme and the potential need for social licence. This project was proposed in early 2019 to the One Billion Trees Partnership Fund (1BT) to work towards achieving an identified short-term objective identified by Te Uru Rākau – ‘Identification of social barriers to planting and harvesting forests’.

In the project, the team examined potential social barriers to planting indigenous forests by looking through academic, industry, and government literature and commissioned reports, and media reports from both the landholder and public perspectives. Understanding these social barriers allowed the research team to then develop a monitoring and evaluation framework that could be used by Te Uru Rākau or local government to collect data and evaluate future tree planting programmes, both native and exotic. The research team also provided recommendations for improving incentives for landholders to plant native trees on their land.

The team produced eight publications for use by MPI/Te Uru Rākau, landholders, industry, and the general public. These publications include:

- a background report and fact sheet on literature and media perspectives on barriers to planting,
- a survey and fact sheet on public perceptions of native afforestation and possible end-use for those forests,
- a handbook to guide landholders in gaining and maintaining social licence (SLO),
- a survey and report about the barriers landholders perceive they face,
- a monitoring and evaluation framework for afforestation programmes,
- a report and policy brief on potential alternative incentive programmes for native afforestation.

The fact sheets, literature and media report, landholder barriers report, SLO handbook and policy brief are available on MPI’s Canopy website (<https://www.canopy.govt.nz>).

2 Methods

The project team used a variety of methods for each of the activities and deliverables. The literature survey involved a systematic but non-exhaustive search of academic, government, and corporate literature alongside media articles in the New Zealand press to outline the issues, barriers, and challenges to afforestation and planting trees. Additional ‘conversations’ with a number of stakeholders (Councils and primary industry bodies) and iwi complemented the literature survey.

A survey of public perceptions, which contained qualitative and quantitative questions, was conducted to build a comprehensive understanding of respondent’s values and how these values influence their perceptions of forestry. The quantitative questions measure perceptions of general and native forestry and native afforestation while the qualitative (i.e. open-ended) questions provide context and depth as to ‘why’ respondents believe what they do around both exotic and native forestry. A total of 1088 New Zealanders completed the survey in June 2021. The sample was recruited through a paid survey panel, and was matched to regional population demographics.

Descriptive statistical analysis was used to feed some of the data from the survey into the SLO Handbook, which used the social licence framework proposed by Stronge et al. (2020). Additional information on engagement with tangata whenua was incorporated from earlier work by Harmsworth (2005) and Robb et al. (2015).

Detailed descriptive statistical analyses were conducted on key public survey questions to provide figures and tables for a public perceptions fact sheet. These analyses were conducted using Stata.

A telephone survey of landholders to determine the factors that influence their decisions to plant native trees was conducted of 500 dairy, beef and sheep farmers in Hawke's Bay, King Country, Manawatu-Wanganui, Wairarapa-Greater Wellington, and Southland. These regions were specifically requested by Te Uru Rākau as regions of interest – having received limited applications or high numbers of complaints. The resulting data were analysed using methods based on farm context analysis (Kaine et al. 2005) and the I₃ Compliance Framework (Kaine et al. 2010).

Monitoring and Evaluation (M&E) is a systemic approach to documenting the Theory of Change of a strategy, intervention or influence. This includes its subsequent management, and tracks progress towards the desired outputs and outcomes of that intervention or influence (Bayne & Brown 2021). From our understanding of the issues raised in the background report, public, and landholder surveys, a number of key topics that could be useful in tracking progress were developed for both landholders and public stakeholders. The key topics were complemented with key monitoring questions and suggested data collection approaches. Several questions and data collection options were provided so as to be customisable, depending on the eventual context.

The incentives report drew heavily on Kaine's (2021) landholder survey results, in which the key finding is that purely financial incentives are of limited interest to landholders. By using Kaine's (2021) classification of landholders into three major benefit segments, we were able to use a modified needs analysis framework to determine a number of appropriate, alternative potential 'incentives' that are likely to appeal to and meet the needs of landholders in each of these segments.

3 Key findings

The key findings of each of the six technical reports -- the background report, public perceptions survey and methodology, social licence handbook, the report on barriers faced by landholders, monitoring and evaluation framework and report on alternative incentives are summarised below. The public survey, monitoring and evaluation framework and full report on the redesign of incentives programmes are for MPI and Te Uru Rākau's internal use, although we have provided a summary of the contents.

3.1 Background report

The background report (Bayne et al. 2020) was a scan of academic, government, and corporate literature alongside media articles in the New Zealand press to outline the issues, barriers and challenges to afforestation and planting trees. Our review was organised around four source (media, stakeholders, academic, and Māori), and two summary (barriers and opportunities) categories, each with a brief summary of our findings:

- Media articles
 - Prioritisation of forestry over agriculture turns communities against afforestation, rural communities dislike the idea of paying for large greenhouse gas emitters elsewhere. Rapidly rising rural land prices and the detrimental effects of pine trees on communities and landscapes were also noted in media articles.
- Stakeholder perceptions
 - Farmers and agricultural industry groups highlighted the negative issues they and their members face with respect to trees on farms. There was also the feeling that planting trees will ruin the agricultural way of life. The forestry sector highlighted the benefits of mixed and diversified land uses that included trees for harvest.
- Recent New Zealand studies
 - Studies noted the value of trees as part of an integrated landscape, as well as highlighting the high financial, reputational and implementation risks of planting trees and the greater acceptance of afforestation on smaller parcels of land. Some studies highlighted concerns with large-scale planting of exotics, resources being shipped overseas or owned by overseas owners and the impacts (mostly negative) on the local economy and landscapes.
- Māori perceptions
 - Many issues raised by Māori mirrored those of non-Māori. Some additional issues raised included the role of collective decision-making for land use change, balance between economic and cultural aspirations for their whenua, and the role of Kaitiakitanga in the management of their whenua.
- Barriers to afforestation

- Attitudinal barriers included loss of community identity with large scale forestry, productive land should be saved for food production, uncertainty about future returns from forestry, and aesthetic changes to landscapes.
- Institutional barriers included financial disincentives, onerous scheme application processes, and lack of knowledge about planting and caring for native species.
- Ways to overcome barriers
 - Some approaches noted in the surveys where shifting to more positive narratives around trees on farms, improving planning, planting and maintenance assistance to landholders, and more information on the benefits of trees in an integrated landscape.

3.2 Public perceptions survey

In conjunction with developing the social licence handbook, we conducted a modular survey to examine the public perceptions of afforestation and forestry.

The public survey modules can be used alongside or within landholder surveys on native afforestation and forestry. The public survey questions use qualitative and quantitative questions to provide a comprehensive understanding of respondent's values and how these values influence their perceptions of forestry. The quantitative questions measure perceptions of general and native forestry and native afforestation while the qualitative (i.e. open-ended) questions provide context and depth as to 'why' respondents believe what they do about exotic and native forestry (Edwards et al. 2021a).

The public perceptions survey had four broad themes to guide the respondents. The survey asked questions about land-use in general, then New Zealand forestry in general, native forestry, and finally specific aspects of native forestry. Additional questions about values and demographics were also asked.

We found the public is mostly positive about afforestation, particularly on steeply sloped land, recently harvested forest land, riparian zones, gullies, and other marginal land. There was significant discomfort with planting trees on productive agricultural land. The public was accepting of native monocultures or mixed forests for non-timber forest products (NTFP), although still positive about harvesting native trees. Selective harvest was significantly more acceptable than clear-felling. Ownership of native forests by New Zealand companies, individuals or land trusts was acceptable, while overseas ownership was not acceptable.

3.3 Social Licence

A 'handbook' for landholders was developed to provide them with an understanding of what gaining and maintaining SLO and community acceptance may entail. It outlines some principles to follow for gaining and maintaining SLO (Edwards et al. 2021b). The handbook defined social licence, highlighted its importance, and provided a snapshot of some of the public's concerns around native forestry. A practical process and set of actions, including details on engagement with Māori, were provided, all to help landholders gain and maintain social licence for their afforestation aspirations.

3.4 Landholder barriers

The findings from Kaine (2021) confirmed that dairy, sheep, and cattle farmers prefer smaller areas of trees being planted on marginal land to large-scale tree planting on productive land. Farmers plant trees primarily to improve marginal land, to protect crops and livestock, and to stabilise slopes and streambanks. In seeking these benefits, farmers also wish to improve the look of their properties, attract more native birds, and improve biodiversity. This means financial assistance that offsets some, or even all, of the costs of planting trees is unlikely to considerably expand the area planted to trees on dairy, cattle, and sheep farms in New Zealand. To stimulate a large-scale increase in the planting of trees, a financial assistance programme would need to substantially offset the losses in farm income associated with planting productive agricultural land to trees. The same holds true regarding the returns from other benefits from planting trees, such as carbon sequestration.

The choice between planting native and exotic trees depends on whether farmers have a desire to improve the look of their property and/or an interest in enhancing the natural environment. Factors such as the availability of supplies of native trees and knowing where to get help and advice on planting native trees did not influence the choice between native and exotic trees for most farmers.

Most farmers have only mild-to-moderate interest in getting financial support to help them plant trees. Consequently, they will only devote a very limited amount of time and energy to seeking financial assistance to plant native trees, even though they may have a favourable attitude towards getting financial assistance.

3.5 Monitoring and Evaluation

Based on an analysis of public perceptions of increased levels of planting trees and the barriers to landholders planting trees, this Framework provides a simple and pragmatic means for government bodies (including local Regulatory Authorities) and community groups to determine likely drivers of support and concern relating to tree planting (Bayne & Brown 2021).

Monitoring and Evaluation (M&E) is a systemic approach to documenting the Theory of Change of a strategy, intervention or influence. M&E includes the subsequent management of a programme as well as tracks progress towards the desired outputs and outcomes an intervention or influence is trying to achieve. Having an M&E Framework to guide the monitoring of landholder and public perceptions of trees, enhancing the enablers and mitigating the barriers to increased planting more trees. The Framework should enable better informed future guidelines, policy, communications and education on the planting and management of native and exotic trees. The key topics covered in the M&E Framework are outlined in Table 1

Table 1. Key topics covered in the M&E framework

Key topics – Rural landholders	Key topics – Public
Intention to plant native/exotic trees	General perceptions of current land use
Motivation and attitude towards financial incentives	General perceptions of commercial forestry
Reasons for planting	Perceptions of planting native and exotic trees
Issues related to planting	Perceptions of future use of native and exotic trees
Demographics and property data	Importance of environmental, social, economic and cultural values
Who to involve	Financial assistance for planting trees
	Demographics
	Who to involve

3.6 Incentives

The purpose of this report (Edwards et al. 2021c) was to synthesise data collected in other components of the wider project that sought to identify potential alternative or new incentives from the literature, landholders themselves and communities. The results lean heavily on Kaine's (2021) results from surveying 500 landholders in selected regions across New Zealand. The key finding from this survey was that purely financial incentives are of limited interest to landholders. By using Kaine's (2021) classification of landholders into three major benefit segments, we were able to use a modified needs analysis framework to determine a number of appropriate, alternative potential 'incentives' that are likely to appeal to and meet the needs of landholders in each of these segments.

The alternative incentives described herein aim to provide more holistic, wrap-around support for planning, planting, and managing native seedlings and trees on rural land. While financial support is still relevant, the key wrap-around supports that landholders need are:

- Reduced transaction costs
- Assistance with planning, planting and early management of native trees
- Trustworthy, accessible information and advice

More specifically, the incentives were categorised into three categories, outlined in Table 2.

Table 2. Summary of proposed incentives in each categorisation

Financial incentives	Practical assistance incentives	Messaging, extension and advisory incentives
Simplify the application process for financial assistance and, where possible, minimise the costs and complexity of compliance.	Council assistance in securing supplies of native trees for planting (save time and effort)	Ensuring information is easily accessible, all in one location, and contains information on planning, planting, managing, and growing native trees. This information should also include social, economic and cultural information, such as information on gaining a social licence to operate.
Provide indirect financial assistance for up-front costs by reducing the costs of afforestation, such as through bulk purchases of native seedlings and other materials.	Sub-catchment groups could employ a person (paid for by Council/ MPI) to assist with weeding and spraying of native tree plantings which take longer to establish.	Reviewing existing extension services and incentivising training or accrediting new or existing extension services to provide native tree/forest advice and information.
Reduce long-term costs by working with regional councils to provide rates rebates for land covered by native trees ¹		Providing professional or specialist assistance for growing large-scale native tree plantations. Technical and professional advice and support for complex processes, for example mapping or boundary surveying will help landholders more easily prepare application documents.
		Ensuring management advice and support (e.g. through a retainer or subsidy direct to specialist extension services) is guaranteed until the trees have grown past a critical point (a point where ongoing survival is highly likely). This will help overcome the initial capability gap with successfully growing native trees.
		Promoting the narrative that planting trees is not 'selling out' from farming. Trees have played an integral part of farming systems globally and can be an integral part of a farming system in New Zealand. This narrative may encourage reticent landholders to participate in afforestation grant schemes.

The incentives that were suggested, are not, of themselves, novel; however, we presented data that demonstrates that an incentive programme needs to have a suite of incentives that are carefully designed to meet the needs of a range of different 'types' of landholders.

¹ Not just forestry land, but regeneration and riparian plantings.

4 Research highlights

There are a number of highlights that emerged from this project. The research:

- Highlighted the overall lack of data on native trees, e.g. their longevity on marginal land.
- Identified a variety of competing narratives about planting native trees emerging from different groups – Te Uru Rākau, industry bodies, different landholder cohorts, stakeholders and stakeholder groups and the New Zealand public.
- Established quantitatively that landholders are not solely interested in financial incentives.
- Found landholders (farmers in particular) are incredibly sensitive to the transaction costs associated with participating in an incentive scheme.
- Opened up of future lines of enquiry, including
 - designing incentives that are sensitive to transaction costs while ensuring accountability for taxpayer funds.
 - Understanding the demand for native seedlings and what species landholders are planting and where.

5 Conclusions and recommendations

This project was not exhaustive and the social barriers to planting identified from the literature, landholders and the public are likely to be a subset of wider set of barriers. We recommend that the research outputs from this project be read together with other related 1BT funded research outputs (e.g. Smith & Heath 2020; Collins & McFetridge 2021) to gain a fuller picture of the issues, challenges and opportunities facing different communities and landholders when it comes to planting trees. It is worth examining planting programmes offered by regional councils, landholder participation in those programmes and leveraging off their successes to build a complementary national programme.

Continuing efforts to identify and understand public and landholder perceptions, challenges, and opportunities is key to the success of existing and future afforestation programmes. The development of the modular landholder survey and public survey will allow MPI/ Te Uru Rākau to routinely survey landholders and the public and compare responses over time. Combined with data gathered using the monitoring and evaluation framework, MPI and Te Uru Rākau will be able to adjust incentive programmes, information delivery, and other communications to changing needs and perceptions.

At the time of writing, the general public was highly supportive of native afforestation, including eventual harvest.

Afforestation incentive schemes need to consider the practicalities of requirements for participating in incentive schemes, such as application complexity, other transaction costs, fencing in flood-prone areas, and pest control. There is a need for a programme that offers flexibility in terms of planting and rewards efforts to maintain those plantings.

6 Acknowledgements

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